

REMARKS

Claims 1, 3, 5-9, and 11-13 are pending in the application. By this Amendment, Applicant adds the subject matter of claim 4 into claim 3 and cancels claim 4 without prejudice or disclaimer. Applicant also adds new claims 11-13 which are fully supported in the original disclosure.

Claims 1, 4 and 9 are objected to. Claims 3, 4, 6 and 8 are rejected under 35 U.S.C. § 112, first paragraph. Claims 1, 5, 7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's prior art Fig. 1 in view of Wu et al. (US Patent No. 5,307,007) and Lee (US Patent No. 6,356,139). Claims 3, 4, 6 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's prior art Fig. 1 in view of Wu (US Patent No. 5,307,007) and Park et al. (US Patent No. 5,880,625). Applicant respectfully submits the following in traversal.

Claim objections

Applicant, hereby, deletes "of in common" in claims 1, line 5 and claim 9, line 5.

Applicant respectfully requests the Examiner to withdraw the objection.

Rejection of claims 3, 4, 6 and 8 under § 112, first paragraph

The Examiner maintains that claims 3, 4, 6 and 8 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. More specifically, the Examiner asserts that the claim contains subject matter which is not described in the

specification in such a way as to enable one skilled in the art to which it pertains, or with it is most nearly connected, to make and/or use the invention.

Applicant submits that claim 3, 6 and 8 comply with 35 U.S.C. § 112, first paragraph and requests the Examiner to withdraw the rejection.

Rejection of claims 1, 5, 7 and 9 under § 103(a) over Applicant's prior art Fig. 1 in view of Wu and Lee

Claim 1

Applicant submits that claim 1 is patentable. The Examiner maintains that the circuit components M1, M2, M3 and M4 in Fig. 1 of Wu are analogous to components MP11, MP12, MN13 and MN14 in Fig. 1 of the instant application and that it would have been obvious to connect a capacitor, such as C1 taught in Fig. 1 of Wu, between the output terminal node N12 and the common node N11, as disclosed in Fig. 1 of the instant application, for the benefit of ensuring that the bias circuit properly starts. Applicant, however, disagrees with the Examiner for the following reasons.

An exemplary embodiment of the present invention may be to prevent a transient state occurring at the beginning of a power supply of power source voltage, using a start-up circuit, when the nodes N11 and N12 have fixed voltages at the initial time that a power source voltage is applied. Applicant, however, notes that Wu discloses a voltage transient state as soon as power is applied to the circuit in Fig. 1 before all the node voltages and currents are forced to their normal values in the stable state (col. 3, lines 62-68). Wu attributes the voltage transient state to a connection between a bipolar junction transistor Q2 and a PMOS transistor M2 (col. 3, lines 61-63). Since an exemplary object of the present invention may be to prevent a transient

state, Applicant submits that the present invention overcomes the deficiencies of Wu and that claim 1 is not obvious over the Applicant's prior art Fig. 1 in view of Wu and Lee.

In addition, Wu performs start-up function to initially operate a bias circuit when power source voltage is applied. However, Applicant notes that this operation is limited to a band-gap bias circuit. On the other hand, an exemplary embodiment of the instant application not only performs start-up function, but also prevents noise from power source voltage and improves stability in low voltage and high frequency range by a capacitor. Therefore, for the above additional reasons, Applicant submits that the present invention overcomes the operational deficiencies of Wu.

For at least the reasons submitted above, Applicant respectfully submits that claim 1 is patentable.

For reasons similar to those submitted for claim 1, Applicant respectfully submits that claim 9 is patentable.

Claims 5 and 7, which depend from claim 1, are patentable at least by virtue of their dependencies.

Rejection of claims 3, 4, 6 and 8 under § 103(a) over Applicant's prior art Fig. 1 in view of Wu and Park

Claim 3

Applicant submits that claim 3 is not obvious over Applicant's prior art Fig. 1 in view of Wu and Park. The Examiner maintains that the Applicant's prior art Fig. 1 corresponds to an output terminal node N12, a second common node N11, a power source voltage Vcc, a grounded

power source V_{ss}, a third PMOS transistor MP11, a fourth PMOS transistor MP12, a first NMOS transistor MN13, a second NMOS transistor MN14 and a resistor R11 as recited in claim 3. In addition, the Examiner maintains that Applicant's prior art Fig. 1 does not show a second capacitor, however, cites Wu to make up for this deficiency. Applicant submits that it would not be obvious to one skilled in the art at the time of the invention to connect a capacitor as taught by Wu between the output terminal node N12 and the common node N11 for reasons submitted in the response to the rejection of claim 1.

Further, the Examiner maintains that Applicant's prior art Fig. 1 does not show the first and second PMOS transistors as recited in claim 3, however, cites Park to make up for this deficiency. The Examiner asserts that cascode bias circuit components M56, M55, M52, M51 and R in Fig. 6 of Park are analogous to components MP11, MP12, MN13, MN14 and R11 in Applicant's prior art Fig. 1. Applicant, however, disagrees with the Examiner for the following reasons.

Applicant notes that component M55 in Fig. 6 of Park has a body connected to the gate of another PMOS transistor M64. First, Applicant submits that the Examiner's rejections of claims 1 and 3 are contradictory. In the rejection of claim 1, the Examiner asserts "Where no body connection is shown, one conventionally assumes that the body is connected to the source because such a connection is the simplest, most straight forward way of terminating the body.". Applicant submits that the Examiner's assumption, in the rejection of claim 1, that the body of component MP11 is connected to the source of component MP11 is contradictory to the rejection of claim 3 wherein the Examiner corresponds component M55, which has its body connected to

the gate of component M64, in Fig. 6 of Park to component MP11 of the Applicant's prior art Fig. 1.

Second, Applicant submits that the body effect created in the circuit disclosed in Fig. 6 of Park influences the threshold voltage and the voltage across the oxide layer of the PMOS transistor M55. Since the body effect significantly changes the operation of the circuit by changing the threshold voltage and the voltage across the oxide layer of the PMOS transistor M55, Applicant submits that the component M55 in Fig. 6 of Park is not analogous to component M11 in the Applicant's prior art Fig. 1. Therefore, it would not be obvious to one skilled in the art to augment Applicant's prior art Fig. 1 with cascode components M54 and M53 taught by Park.

Third, even if assuming *arguendo*, that the Examiner is intending to argue that it would be obvious to connect the capacitor as taught by Wu between the output terminal node N12 and the common node N11, Applicant submits that that one skilled in the art would not be motivated to augment Applicant's prior art Fig. 1 with cascode components M54 and M53 as taught by Park for the benefit of reducing current fluctuations. Applicant notes that Wu discloses the inclusion of the start-up circuitry in the bandgap voltage reference to ensure normal operation in the non-zero current state where all the node voltages and currents are forced to their normal values in the stable state as long as the circuit is started up (col. 3, lines 45-47, col. 3, lines 65-68). The object of coupling pairs of transistors in a cascode fashion in Park's reference is to reduce the current fluctuation (col. 4, lines 16-20). Since the object of coupling pairs of transistors in a cascode fashion in Park and using the start-up circuitry in Wu is to stabilize the current and reduce current fluctuations, Applicant submits that one skilled in the art would not be

motivated to implement the teachings of both Wu and Park with that of Applicant's prior art Fig.

1.

For at least the reasons submitted above, Applicant respectfully submits that claim 3 is patentable.

Claims 6 and 8, which depend from claim 3, are patentable at least by virtue of their dependencies.

New claims

Applicant adds new claims 11-13 to more fully cover various aspects of Applicant's invention as disclosed in the Specification. Applicant submits that all new claims are fully supported in the originally filed Specification and are patentable at least by the virtue of their dependencies.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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